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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,921	07/29/2003	John J. Breen	16356.817 (DC-05156)	8117

27683 7590 06/29/2007

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EXAMINER	
BOATENG, ALEXIS ASIEDUA	
ART UNIT	**PAPER NUMBER**
2838	
MAIL DATE	**DELIVERY MODE**
06/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,921	BREEN ET AL.	
	Examiner	Art Unit	
	Alexis Boateng	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-10,12,14,15 and 19-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-10,12,14,15 and 19-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3 – 6, 8 - 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sainsbury (U.S. 6,104,162) in view of Wilcox (U.S. 5,994,885) and in further view of Shyr (U.S. 5,903,764).

Regarding claim 1, Sainsbury discloses a method for converting an alternating current (AC) input to a direct current (DC) output, the DC output providing power to a load, the method comprising: Receiving the alternative current (AC) input (Figure 3, element 11); Receiving a first feedback signal indicative of a target voltage required by the load (column 4 lines 52 – 62 and Column 5, lines 17-21: the power monitor monitors the voltage demand of the tool, which is the target voltage of the tool (load); feedback voltage Vsel)); Receiving a second feedback signal indicative of the DC output (Column 4, lines 62 – column 5 line 2: feedback voltage, Vsense); providing a controller module (Figure 5) included in an AC-DC adapter (Figure 3, element 22) and operable to receive the first feedback signal (Column 5, lines 17-21; feedback voltage Vsel) and the second feedback (Column 4, lines 62 – column 5 line 2; feedback voltage Vsense); providing a converter in the AC-DC adapter (Figure 3, element 23); the controller module

(Figure 5) adjusting a control signal, responsive to receiving the first and second feedback signals, to the converter to maintain the DC output within a predefined range of the target voltage (Column 4, lines 62-66). Sainsbury discloses all the limitations of claim 1, as described above. However, Sainsbury does not disclose wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load. Wilcox discloses wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load (Column 4, line 30-33). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury's charger with Wilcox's design to adjust the charging parameters in this fashion to make up for any losses. Sainsbury and Wilcox disclose all the limitations of claim 1, as described above. However, Sainsbury and Wilcox does not expressly disclose wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load. Shyr expressly discloses figure 10a, element 374, wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load (i.e. trickle charge). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Sainsbury and Wilcox system with the Shyr system so that the output voltage remains at a safe and manageable level.

Regarding claim 3, Sainsbury discloses the method of claim 1, wherein the second DC output provides power to the load, wherein the load is a battery (Figure 6, Element 41).

Regarding claim 4, Sainsbury discloses the method of claim 3, wherein the DC output is suitable to charge the battery (Column 5, lines 59-62).

Regarding claim 5, Sainsbury discloses all the limitations of claim 1, as described above. However, Sainsbury does not expressly disclose wherein upon a loss of the first feedback signal the second DC output is maintained to a predefined voltage. Shyr discloses in column 1, lines 59-65, a smart battery which periodically responds to polling (i.e. feedback signals are not always present). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury method and utilize a smart battery as taught by Shyr, since periodically sending a feedback signal is more efficient.

Regarding claim 6, see remarks for claim 5. A smart battery is capable of sending a signal indicating the voltage required and receiving that voltage back. If the signal is no longer present the battery will still be receiving that voltage.

Regarding claim 8, Shyr discloses in column 1 lines 63-65 that the first feedback signal is received from the load.

Regarding claim 9, Shyr discloses a smart battery, which would inherently have a controller for the gathering and transmitting the status and requirements of the battery.

Regarding claim 10, Sainsbury discloses all the limitations of claim 1, as described above. However, Sainsbury does not expressly disclose wherein the first feedback signal is received as a single digital signal, a pulse width modulation (PWM) signal, an analog signal, a digital signal, a digital signal superimposed on another analog signal, or an SMBus signal. Shyr expressly disclose Column 6, lines 60-65 wherein the first feedback signal is received as a SMBus signal.

3. Claims 12, 14, 15, and 19 - 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Sainsbury (U.S. 6,104,162) in view of Hatular (U.S. 6,184,66) in further view of Wilcox (U.S. 5,994,885) and in further view of Shyr (U.S. 5,903,764).

Regarding claim 12, Sainsbury discloses an integrated alternating current (AC) to direct current (DC) adapter comprising: A rectifier module operable to receive an AC input and generate a first DC output (Figure 4, element 29), an AC-DC adapter (Figure 3, element 22); and a controller module (Figure 5) included in the AC-DC adapter (Figure 3, element 22). Sainsbury does not expressly disclose a buck converter module operable to receive the first DC output and generate a second DC output responsive to a control signal; and a controller module operable to receive the first feedback signal input indicative of a target voltage required by a load and a second feedback signal input indicative of the second DC output, the controller module adjusting the control signal responsive to the first and second feedback signal inputs, to the buck converter module to maintain

the second DC output to be within a predefined range of the target. Hatular expressly discloses the use of a buck converter (Figure 1A., Element 60) to supply power for charging a battery. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury's design by replacing his DC-DC converter with Hatular's buck converter. This replacement in Sainsbury's design would then yield: a buck converter module operable to receive the first DC output and generate a second DC output responsive to a control signal (Sainsbury: Column 5 lines 17-21); and a controller module included in the AC-DC adapter and operable to receive the first feedback signal input indicative of a target voltage required by a load (Hatular: Figure 1A, Element 50) and a second feedback signal input indicative of the second DC output (Sainsbury: Column 5 lines 1-2), the controller adjusting the control signal responsive to the first and second feedback signal inputs, the adjusting of the control signal causing the buck converter module to maintain the second DC output to be within a predefined range of the target (Sainsbury: Column 4, lines 62-66). Sainsbury discloses all the limitations of claim 1, as described above. However, Sainsbury does not disclose wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load. Wilcox discloses wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load (Column 4, line 30-33). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury's charger with Wilcox's design to

adjust the charging parameters in this fashion to make up for any losses.

Sainsbury and Wilcox disclose all the limitations of claim 1, as described above. However, Sainsbury and Wilcox does not expressly disclose wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load. Shyr expressly discloses figure 10a, element 374, wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load (i.e. trickle charge). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Sainsbury and Wilcox system with the Shyr system so that the output voltage remains at a safe and manageable level.

Regarding claim 14, Sainsbury discloses wherein the second DC output provides power to the load, wherein the load is a battery (Figure 6, Element 41).

Regarding claim 15, Sainsbury discloses the method of claim 14, wherein the second DC output is suitable to charge the battery (Column 5, lines 59-62).

Regarding claim 19, Shyr discloses wherein the first feedback signal is received from the load (Column 1, lines 63-65)

Regarding claim 20, Shyr discloses a smart battery, which would inherently have a controller for the gathering and transmitting the status and requirements of the battery.

Regarding claim 21, Sainsbury and Hatular discloses all the limitations of claim 12, as described above. Neither Sainsbury nor Hatular expressly disclose wherein the first feedback signal is received as a single digital signal, a pulse

width modulation (PWM) signal, an analog signal, a digital signal, a digital signal superimposed on another analog signal, or an SMBus signal. Shyr expressly disclose Column 6, lines 60-65 wherein the first feedback signal is received as a SMBus signal.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sainsbury (U.S. 6,104,162) in further view of Wilcox (U.S. 5,994,885) and in further view of Shyr (U.S. 5,903,764).

Regarding claim 22, Hatular expressly discloses in figure 1 element 26, an information handling system comprising:

A processor; (inherent to an information handling system)

A system bus; (inherent to an information handling system)

A memory coupled to the processor through the system bus (inherent to an information handling system) (Column 5, Lines 34-40); and

A power supply system operable to provide power to the processor, the bus and memory, the power supply system being connectable to an alternating current (AC) power source, wherein the power supply system includes (Column 5, lines 24-29):

A buck converter module (Element 60) operable to receive the first DC output and generate a second DC output.

Hatular does not expressly disclose a rectifier module for receiving the AC input and generate DC output, a control module for receiving feedback signals and controlling the output of the buck converter.

Sainsbury expressly discloses a rectifier module (Figure 4, Element 29) operable to receive the AC input and generate a first direct current (DC) output; an AC-DC adapter (figure 3, element 22); a control module (Figure 5) included in the AC-DC adapter (figure 3, element 22) and operable to receive the first feedback signal (Vsense) input indicative of a target voltage required and a second feedback signal (Vsel) input indicative of the second DC output (Column 5 lines 1-2), the controller module adjusting the control signal responsive to the first and second feedback signal inputs (Figure 4, Elements 32, 33, 34) to causing the second DC output to be within a predefined range of the target voltage (Column 4, lines 62-66). It would have been obvious at the time of this invention to combine the teachings of Sainsbury's multiple power source with the Hatular's smart battery computer system, in order to be able to regulate the voltage going into the system. Sainsbury discloses all the limitations of claim 22, as described above. However, Sainsbury does not disclose wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load. Wilcox discloses wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load (Column 4, line 30-33). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury's charger with Wilcox's design to adjust the charging parameters in this fashion to make up for any losses. Sainsbury and Wilcox disclose all the limitations of claim 22, as described above. However, Sainsbury and Wilcox does not expressly disclose

wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load. Shyr expressly discloses figure 10a, element 374, wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load (i.e. trickle charge). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Sainsbury and Wilcox system with the Shyr system so that the output voltage remains at a safe and manageable level.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatular (U.S. 6,184,660) in view of Sainsbury (U.S. 6,104,162) in further view of Wilcox (U.S. 5,994,885) and in further view of Shyr (U.S. 5,903,764).

Regarding claim 23, Hatular expressly discloses in figure 1 element 26, an information handling system comprising:

A processor; (inherent to an information handling system)

A system bus; (inherent to an information handling system)

A memory coupled to the processor through the system bus (inherent to an information handling system) (Column 5, Lines 34-40); and

A power supply system operable to provide power to the processor, the bus and memory, the power supply system being connectable to an alternating current (AC) power source, wherein the power supply system includes (Column 5, lines 24-29):

A buck converter module (Element 60) operable to receive the first DC output and generate a second DC output. Hatular does not expressly disclose a

rectifier module for receiving the AC input and generate DC output, a control module for receiving feedback signals and controlling the output of the buck converter. Sainsbury expressly discloses a rectifier module (Figure 4, Element 29) operable to receive the AC input and generate a first direct current (DC) output; an AC-DC adapter (Figure 3, element 22) a control module (Figure 5) included in the AC-DC adapter (Figure 3, element 22) and operable to receive the first feedback signal (Vsense) input indicative of a target voltage required and a second feedback signal (Vsel) input indicative of the second DC output (Column 5 lines 1-2), the controller module adjusting the control signal responsive to the first and second feedback signal inputs (Figure 4, Elements 32, 33, 34) to the second DC output to be within a predefined range of the target voltage (Column 4, lines 62-66). It would have been obvious at the time of this invention to combine the teachings of Sainsbury's multiple power source with the Hatular's smart battery computer system, in order to be able to regulate the voltage going into the system. Sainsbury discloses all the limitations of claim 22, as described above. However, Sainsbury does not disclose wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load. Wilcox discloses wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load (Column 4, line 30-33). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Sainsbury's charger with Wilcox's design to adjust the charging parameters in this fashion to make up for

any losses. Sainsbury and Wilcox disclose all the limitations of claim 22, as described above. However, Sainsbury and Wilcox does not expressly disclose wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load. Shyr expressly discloses figure 10a, element 374, wherein the DC output is maintained at a predefined voltage upon completion of providing a charge to the load (i.e. trickle charge). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Sainsbury and Wilcox system with the Shyr system so that the output voltage remains at a safe and manageable level.

Response to Arguments

6. Applicant's arguments filed 4/12/07 have been fully considered but they are not persuasive. **Regarding claims 1, 12, and 22,** the applicant argues wherein the Sainsbury reference does not teach either "providing a controller module included in an AC-DC adapter and operable to receive the first feedback signal and the second feedback signal." Sainsbury discloses in column 4 lines 52 – 61 wherein the auto voltage selector receives different inputs, which produces, the first signal, Vsel. As shown in figure 5, the control module encompasses **both** the auto-voltage selector and the power monitor as they both **control** the voltage within the system to produce a certain output voltage. This control module is also housed within the AC-DC adapter module as disclosed in figure 3, item 22.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AB

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SUPERVISORY PATENT EXAMINER